

**BELL SYSTEM PRACTICES**  
Station Installation and Maintenance

**SECTION C33.008**  
Issue 1, April, 1954  
AT&T Co Standard

## STATION PROTECTION

### STATIONS SERVED BY OPEN WIRE

#### 1. GENERAL

1.01 The fused-type protectors described in this section must be used for all stations served by open wire. (B rural distribution wire is considered as open wire for purposes of station protection.)

1.02 Insulated attachments and tubes are required when drop or block wires fed from open wire to fused protectors are attached to or pass through a flammable surface.

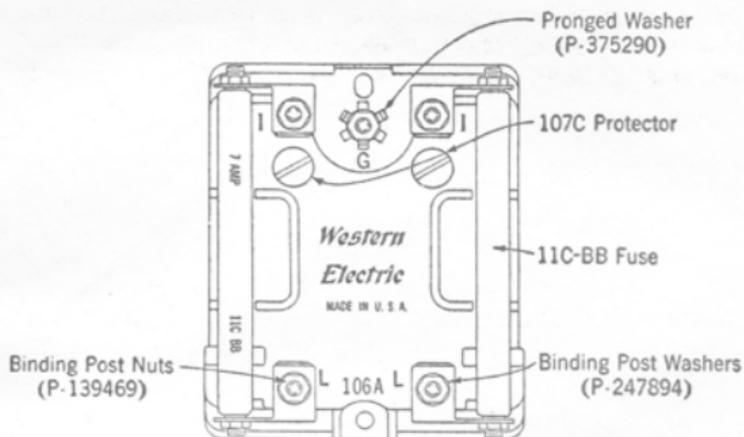
1.03 Where 98A, 106A or 106C protectors are installed in confined spaces such as protector cabinets provided by the subscriber, it is necessary to install a 46A shield on the line side of the protector. The metal detail furnished with the shield is placed between the protector and the cabinet and held in position by the screw used to fasten the protector on the line end. The shield fastens to the metal detail with screws furnished.

1.04 PBX protection is covered in the "B" series of the Bell System Practices.

#### 2. DESCRIPTION

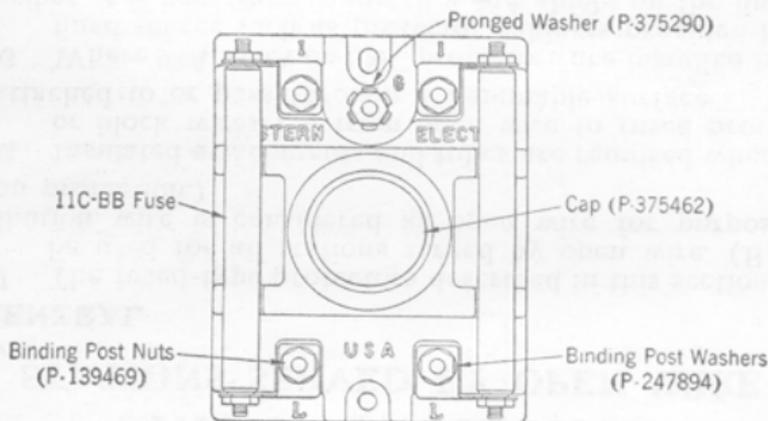
2.01 The various fused protectors are shown in the following illustrations.



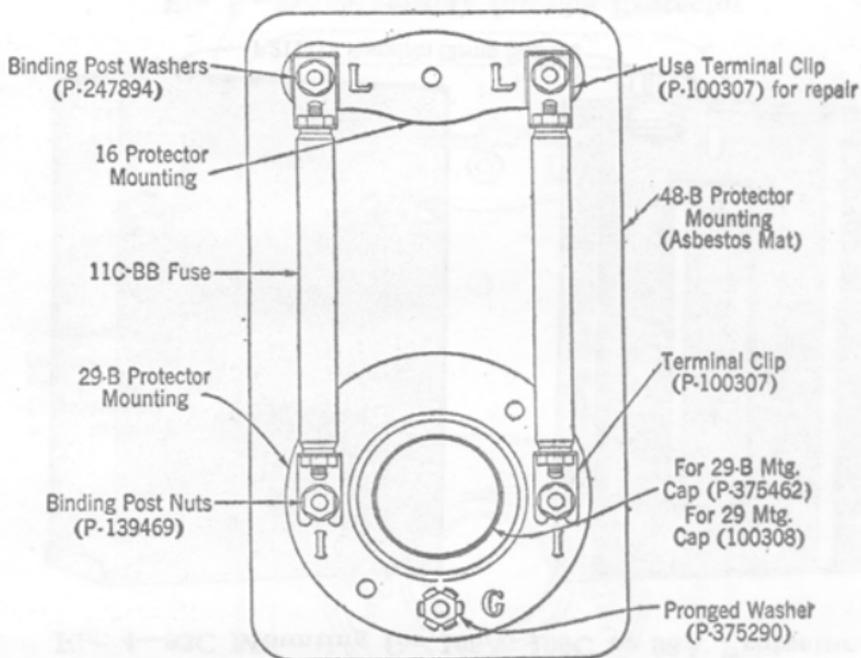


**Fig. 1—106A Protector**

Note: The 106C protector is slightly different in external appearance than the 106A protector. It may be used as a substitute for the 106A. However the 106C protector, due to its construction and improved current carrying capacity, can be converted to fuseless operation. The 106A protector cannot be converted. Additional conversion information on the 106C protector may be found in the section entitled "Station Protection—Stations Served By Metal Sheath Cable."



**Fig. 2—98A Protector**



Screw for Cap Base 29 Mounting only (P-117258) not shown

**Fig. 3—58AP Protector**

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2.02 When installed outdoors, use the mountings shown in the following illustrations to mount the protectors.

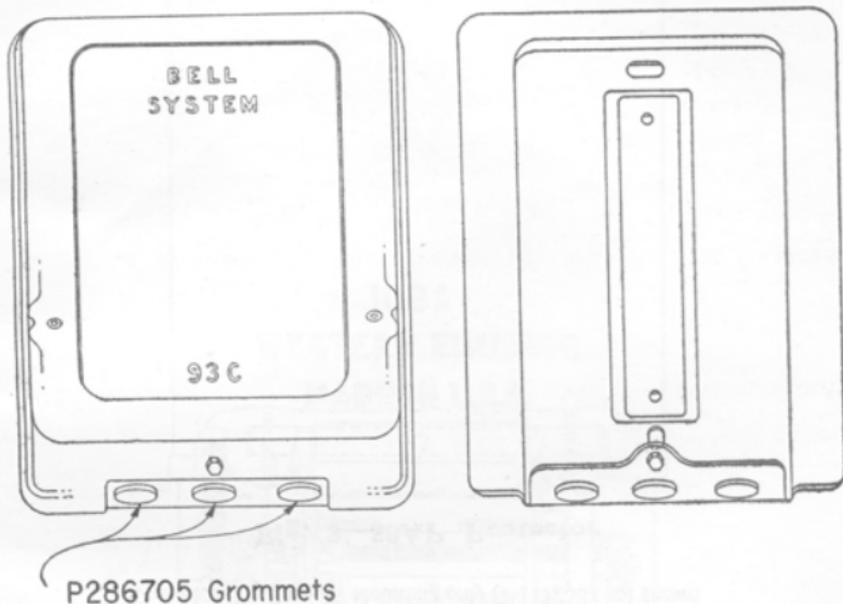


Fig. 4—93C Mounting for 106A, 106C or 98A Protector

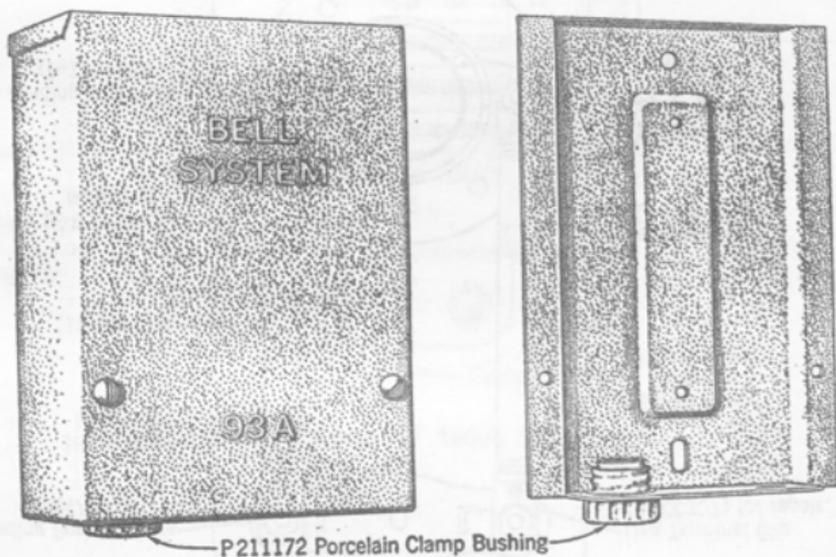
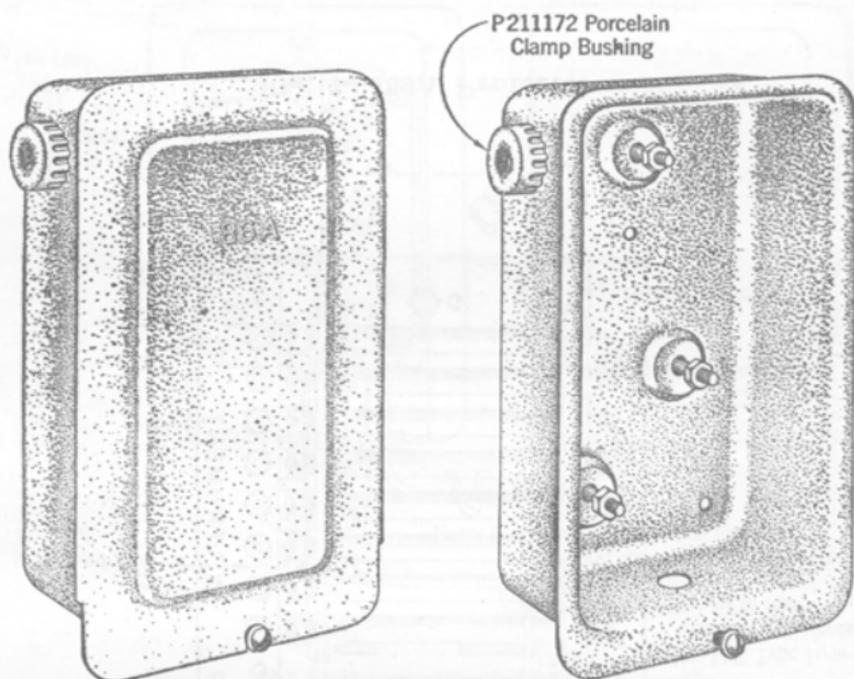


Fig. 5—93A Mounting for 98A Protector



To remove cover loosen screw and slide cover up.

**Fig. 6—86A Mounting for 58AP Protector**

2.03 Coding of protectors complete with mountings may be found in Table 1.

**Table 1**

<u>Protector</u>	<u>Mounting</u>	<u>Complete Assembly</u>
106A	93C	1193C
106C	93C	1293C
98A	93A	1093A
98A	93C	1093C
58AP	86A	1086A

2.04 The 109A protector has a capacity of four lines and is designed for use at multiple dwellings or at other locations where multiple fused protection is required.

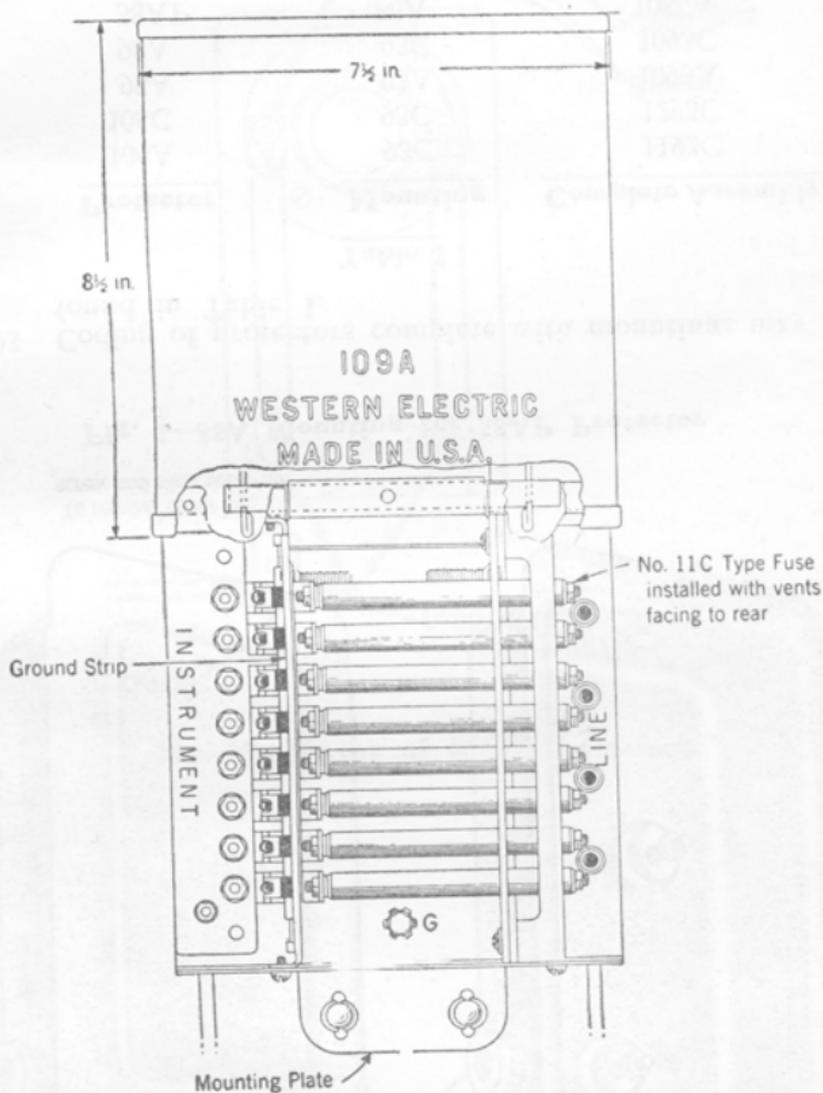


Fig. 7—109A Protector

### 3. LOCATING PROTECTORS

3.01 Consider the following when locating protector:

- (a) Accessibility (avoid placing where a ladder is necessary for installation or maintenance).
- (b) Location of telephone, protector ground, and entrance for drop wire.
- (c) Freedom from likelihood of mechanical damage.
- (d) Appearance standpoint (avoid locations on front of buildings or in living quarters).
- (e) Dry and well ventilated locations when mounted inside or underneath buildings (at least 6 inches away from curtains, drapes, etc.).

### 4. FASTENING PROTECTORS AND PROTECTOR MOUNTINGS

4.01 Fasten protectors and mountings as indicated in Table 2.

Table 2

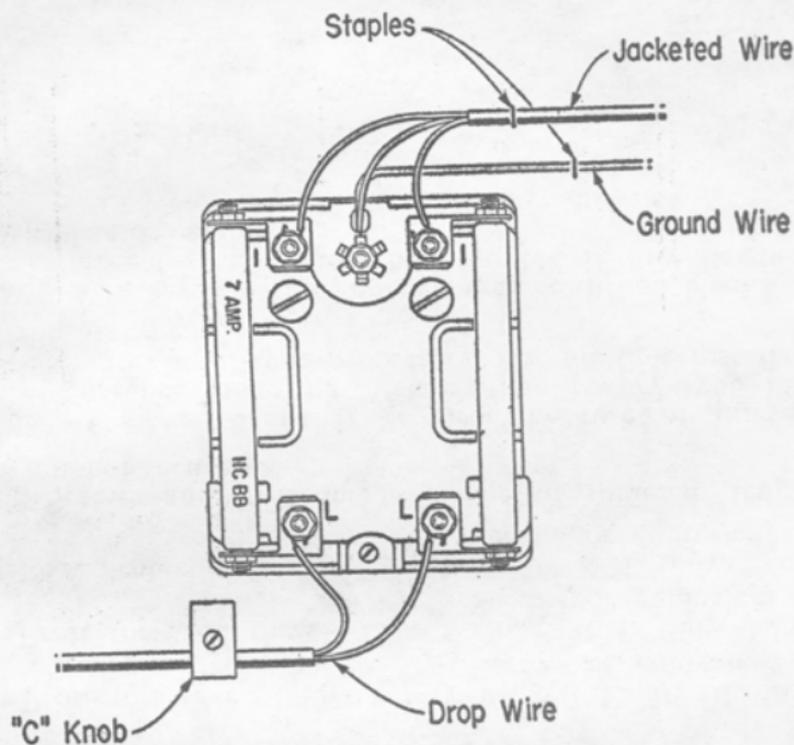
Protectors (except 109A)	* No. 8 R.H. Blued Wood Screws or equivalent
Protector Mountings	* No. 8 R.H. Galv. Wood Screws or equivalent
109A Protector	* No. 14 R.H. Galv. Wood Screws or equivalent

\* Screws and Fasteners shall be of sufficient length to mount securely.

4.02 If a backboard is required because of uneven or insecure mounting surfaces, use the 79 type for the 106-, 98A-, or 58AP-type protectors. For multiple installations, use the 81 type.

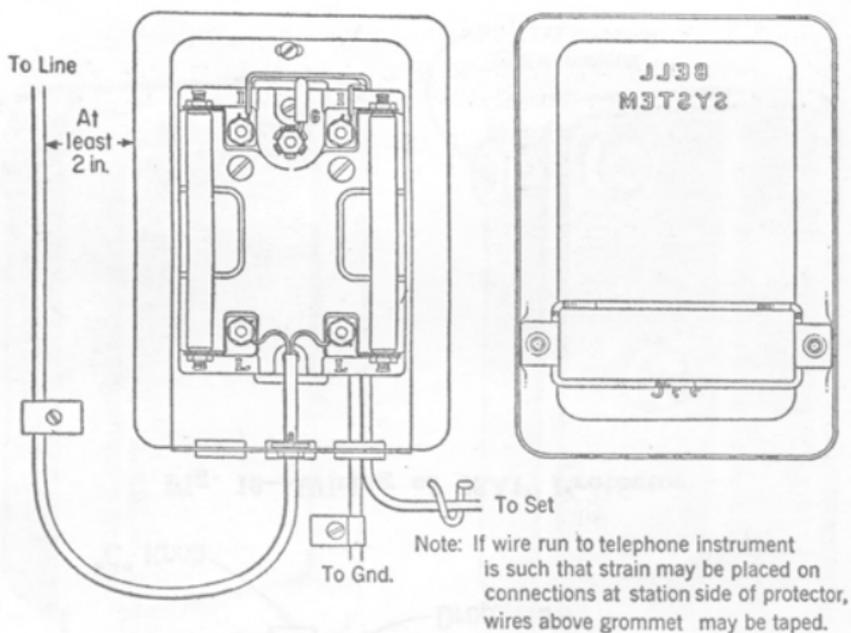
4.03 As a result of an improvement in carbon blocks, fused protectors may now be mounted in any position on walls, joists or ceilings.

## 5. WIRING PROTECTORS

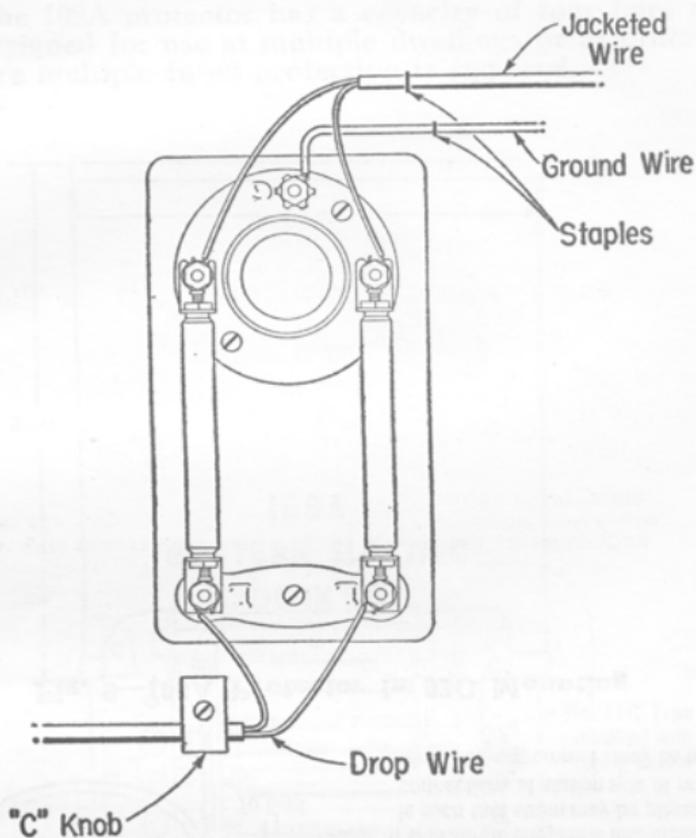


**Fig. 8—Wiring of 106A Protector**

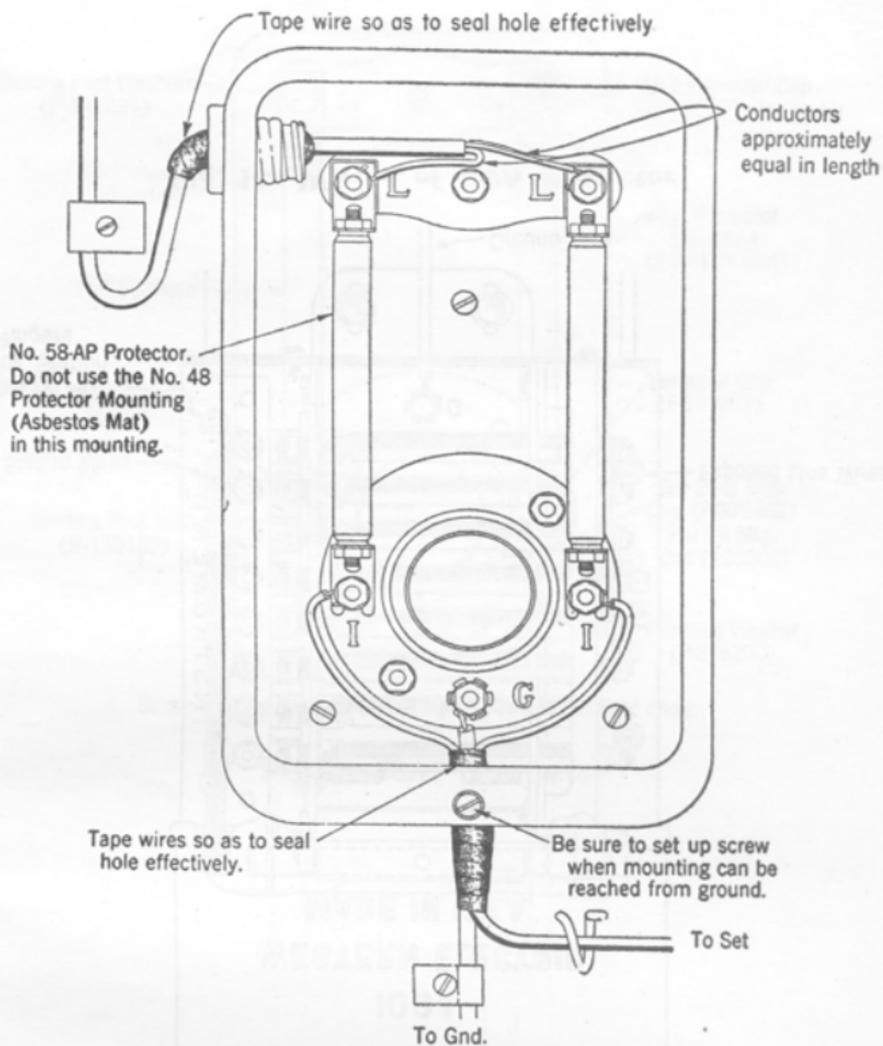
Note: 98A protector wiring identical to 106A protector.



**Fig. 9—106A Protector in 93C Mounting**



**Fig. 10—Wiring of 58AP Protector**



**Fig. 11—58AP Protector in 86A Mounting**

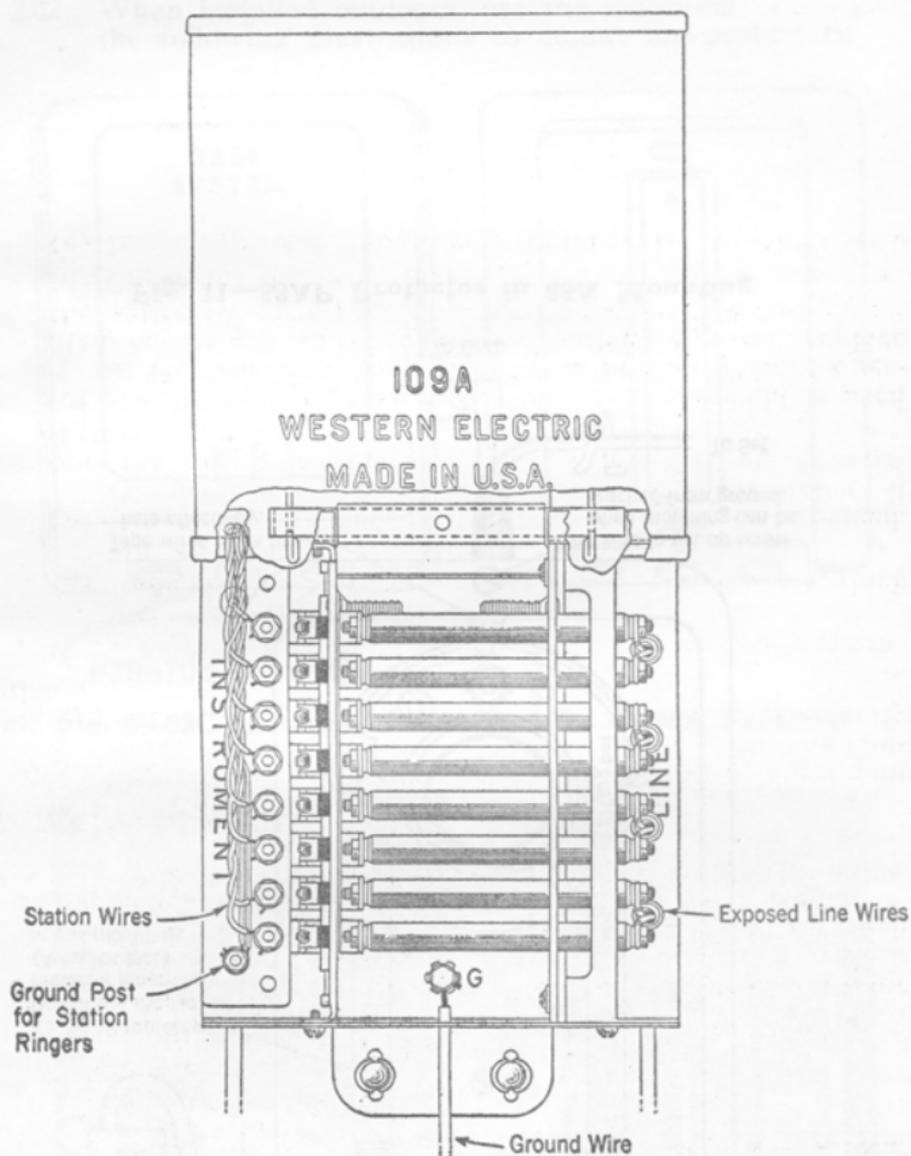


Fig. 12—Wiring of 109A Protector

## 6. GROUND WIRE CAPACITY

- 6.01 The number of fused protectors that may be used with the various ground wires is shown in Table 3.

Table 3

<u>Type Ground Wire</u>	<u>No. of Fused Protectors*</u>
14 (Ivory or Brown)	1-3
12 (Gray)	4-6
10 (Black)	7 or more

- \* The 109A protector is considered as four protectors for grounding purposes. Do not use a ground rod with a 109A protector. A ground rod shall be provided for each individual protector (98A, 106A, etc.). Refer to Engineering Department if no other grounding medium is available.

## 7. MAINTENANCE

7.01 Station protectors need not be inspected on subsequent installation and maintenance visits unless a trouble condition is suspected in the protector or local instructions specify otherwise.

7.02 When a protector is visited, the following work operations shall be performed.

- (a) Replace protectors, mountings or associated parts which are defective or are in poor condition.
- (b) Broken or cracked carbon blocks should be replaced. If excessively pitted, turn block over and reuse if opposite side is in good condition. If neither side is satisfactory, replace block.
- (c) For 107-type protectors (carbon block assemblies used in 106-type protectors) in which the blocks have operated, or are cracked, broken or excessively pitted, replace the entire 107-type protector with a 107C protector.
- (d) Check for defective fuses.
- (e) Inspect ground clamp and ground wire.